

CITY OF  
LONG BEACH

# CAAP

Planning Commission Meeting  
January 17, 2019

CLIMATE ACTION  
+ ADAPTATION PLAN

# What is Climate Action/Mitigation?

*Climate Action is...*

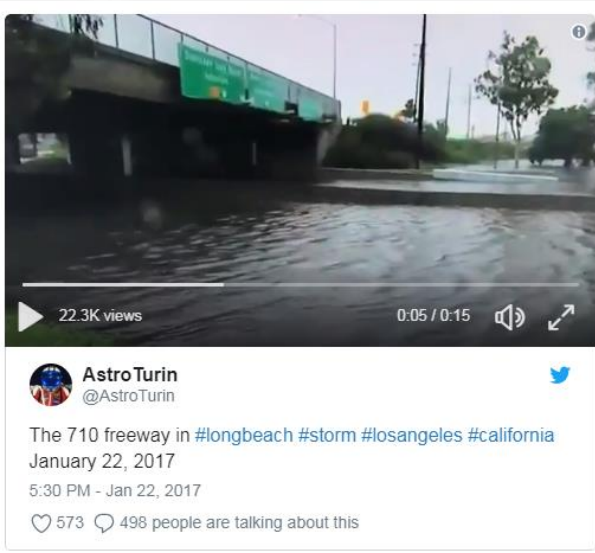


Image Credit: Press Telegram

...about reducing the impact we (people) have on the climate system by reducing future carbon emissions. *(for example, driving less)*

# What is Climate Adaptation?

*Climate Adaptation is...*



...about adjusting our behaviors, systems, infrastructure, to reduce the impact climate change has on us. *(for example, flood proof a house)*

# What is the CAAP?

## Long Beach is developing its first ever Climate Action and Adaptation Plan (CAAP), and we need your help!

- ▶ What is a CAAP? A plan to:
  - Reduce greenhouse gas (GHG) emissions
  - Prepare the community for the impacts of climate change
  - Improve the quality of life
  - Enhance economic vitality in Long Beach

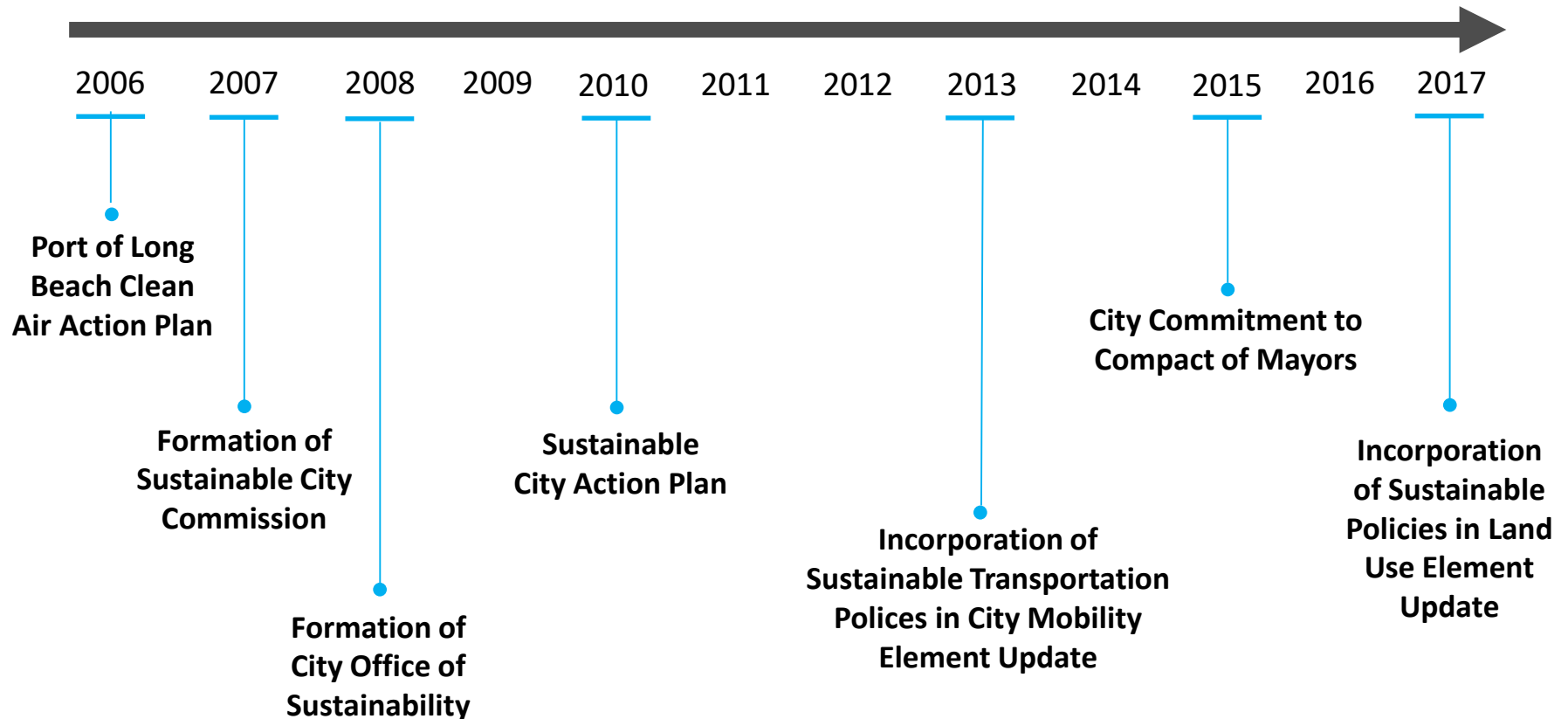


# Where Does CAAP Fit In?

- ▶ General Plan Update:
  - ▶ Land Use Element Update
    - Climate Action and Adaptation Plan (CAAP)
    - Uptown Planning Land Use and Neighborhood Strategy (UPLAN)
  - ▶ Urban Design Element (new element)
  - ▶ Housing Element (led by Housing and Neighborhood Services Bureau)
  - ▶ Noise Element
  - ▶ Mobility Element (livability, partnership with Public Works and Health)
    - Bike Master Plan
    - Pedestrian Plan/CX3

# Building on Historical Achievements

## Timeline of Long Beach Sustainability and Resilience Accomplishments



# Why Develop a CAAP?

- Meet applicable local, state, and other requirements:
  - AB 32 / SB 32 (aka California Global Warming Solutions Act of 2006)
    - Requires California to reduce its GHG emissions to 1990 levels by 2020 — a reduction of approximately 15 percent below emissions expected under a “business as usual” scenario.
  - SB 375 (Sustainable Communities and Climate Protection Act of 2008)
    - Integrate transportation, land use and housing policies to achieve emissions reductions
  - AB 691
    - Must develop and submit a plan to the State Lands Commission for addressing sea level rise in the Tidelands area
  - SB 1000
    - General Plans must incorporate adaptation strategies
    - Identify and address disproportionate impacts to disadvantaged communities
  - SB 379
    - General Plan Safety Element Update must address climate adaptation and resiliency strategies applicable to that city or county.
  - CEQA
  - Global Covenant of Mayors

# CAAP Goals – *Small Change, Big Impact*

- ▶ Distinguish Long Beach as a leader in climate mitigation and adaptation planning
- ▶ Be an actionable plan (right balance of innovation and practicality)
- ▶ Create a more prosperous community by addressing climate change
- ▶ Consider economic, social, and environmental co-benefits holistically
- ▶ Empower young people to be leaders in creating a most sustainable community
- ▶ Invoke personal sense of responsibility among residents and businesses



# CAAP Development Process

- ▶ Technical Work Nearly Complete and available on our website:
  - Technical analyses required as a basis of data and facts for developing a CAAP
  - Components:
    - Vulnerability assessment of critical assets (buildings, roads, bridges, parks, etc.)
    - DRAFT adaptation actions
    - GHG inventory and forecast
    - Options for GHG mitigation targets
    - DRAFT mitigation actions
- ▶ Preliminary outreach conducted:
  - Scientific Working Group
    - Validate the methodology, provide local data
    - 13 independent experts from: CSULB, LBCC, UCLA, Aquarium of the Pacific, AQMD, RAND
  - City departments
  - Business Working Group- 1/10/19
  - Community Working Group- /16/19
  - Over 20 CAAP community events in 2018 throughout the City
- Now considering possible mitigation measures and adaptation strategies

# June 2, 2018 CAAP Open House

- Presentation on vulnerability assessment results (taped version available on website)
- Vulnerability assessment maps and boards
- Multiple ways to provide input and feedback Multi-lingual
- Sustainability resource fair  
Over 100 residents of all ages attended
- Feedback incorporated



# CAAP Outreach Since June 2018

## CAAP Outreach Since May 2018

# of General Tabling Events	16
# of Presentations	6
# Hosted Events	6
# of Sign-ins	886
# of Estimated Attendees	7638



# CAAP Working Group Meetings Jan 2019:



# 1/14- Special Topic Panel: Sea Level Rise and What Residents Can Do To Prepare

JOIN US FOR A PANEL DISCUSSION ON:

## SEA LEVEL RISE IN LONG BEACH AND HOW HOMEOWNERS CAN PREPARE

Featuring Jerry Schubel, PhD, from the Aquarium of the Pacific and local architect Jeff Jeannette, AIA CGBP, Jeannette Architects

**CAAP**  
Climate Action & Adaptation Plan

MONDAY, JANUARY 14, 2019, 6:00 P.M. – 8:00 P.M.  
BEST WESTERN GOLDEN SAILS HOTEL, 6285 PACIFIC COAST HWY.

The City is developing its first ever Climate Action and Adaptation Plan (CAAP). As part of the process, experts have assessed sea level rise and flooding vulnerabilities in Long Beach. **You are receiving this invitation because this property is included in the sea level rise vulnerability maps as potentially being impacted by sea level rise by the year 2050.\***

### LEARN ABOUT:

- Local sea level rise projections and what the City is doing to tackle climate change
- Strategies for protecting your home from sea level rise and flooding

Light refreshments will be provided. Join the CAAP discussion using **#CAAPLB**.  
For more information, visit: [www.lbds.info/climateactionlb](http://www.lbds.info/climateactionlb).

\* There is considerable uncertainty as to the amount and timing of sea level rise, but these projections provide a better understanding of where efforts should be focused to reduce flood vulnerabilities.

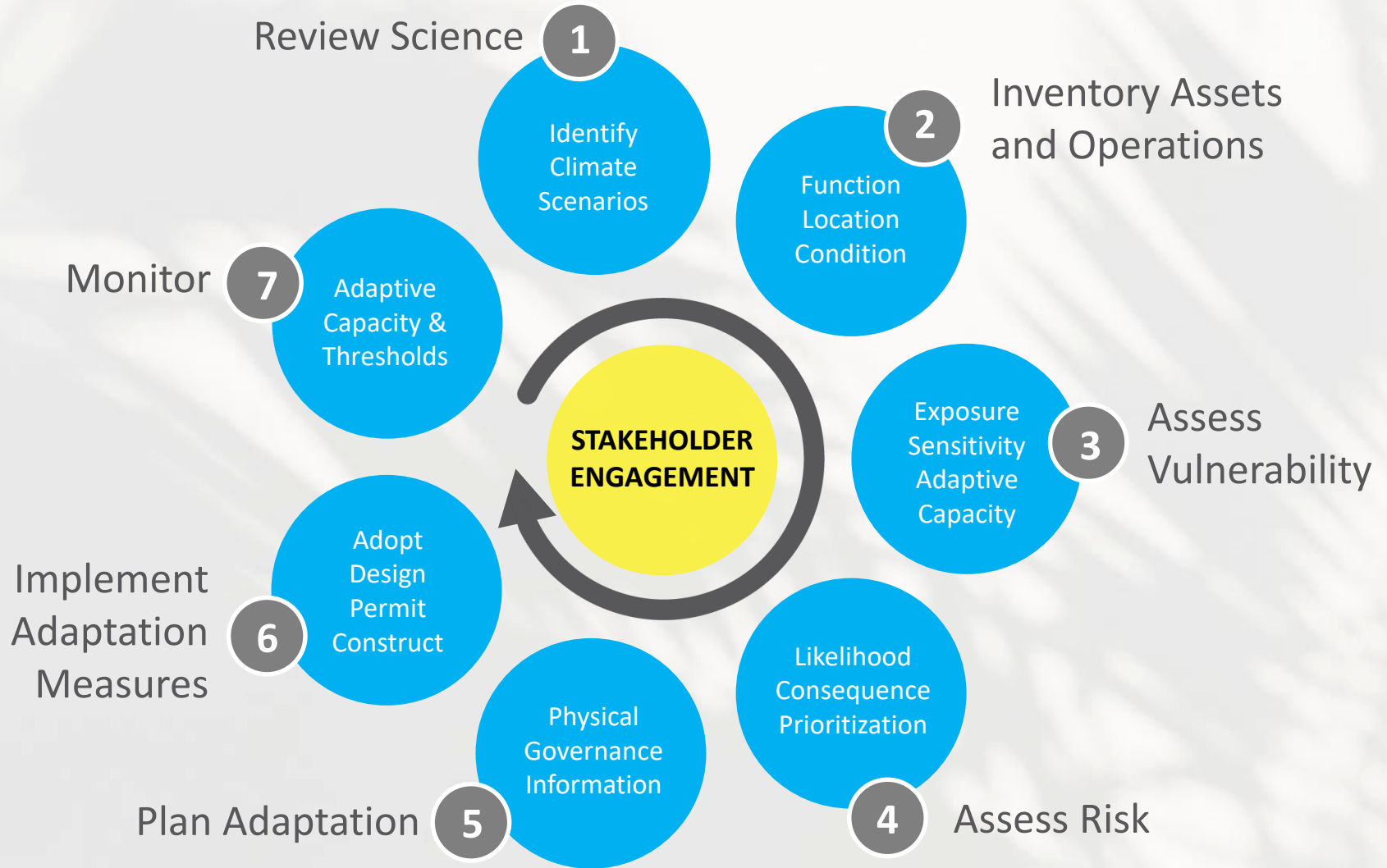
This free event is sponsored by the American Institute of Architects (AIA) Long Beach Chapter and the Aquarium of the Pacific. This information is available in alternative format by request at 562.570.3807. For an electronic version of this information, visit our website at [www.lbds.info](http://www.lbds.info).

CITY OF  
**LONG BEACH**

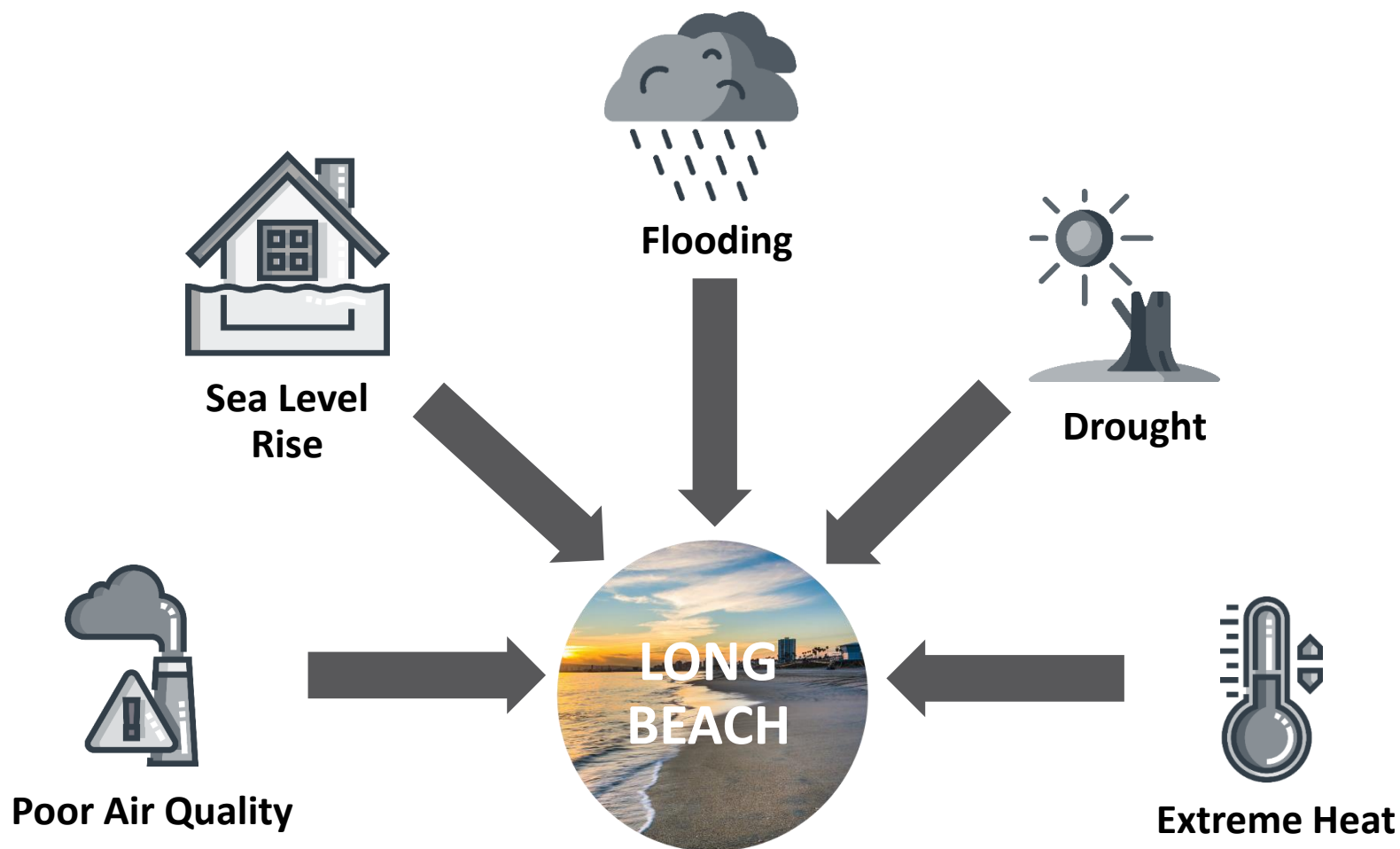
f LongBeachBuilds  
@LongBeachBuilds



# Climate Adaptation Planning Process

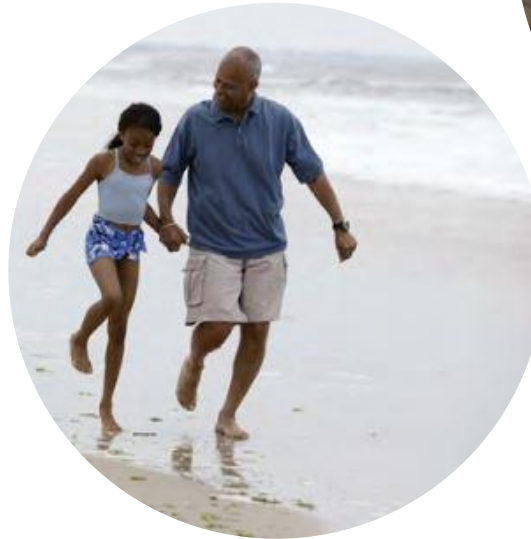


# Climate Hazards Likely to Impact Long Beach

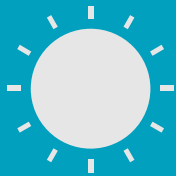


# Community and Infrastructure Assets Likely to be Impacted

- Coastal Resources
- Housing & Neighborhoods
- Parks and Open Space
- Transportation
- Energy
- Wastewater/Stormwater
- Water Supply
- Public Health



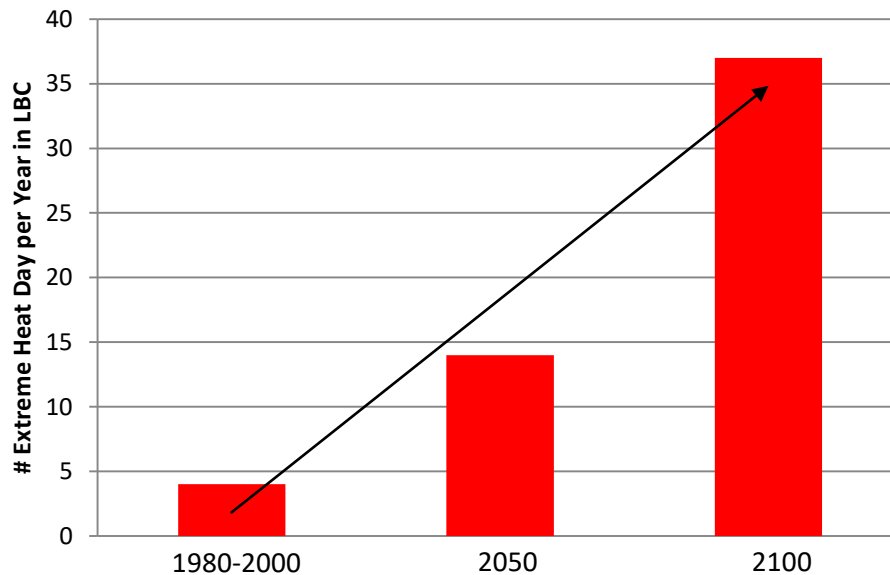
# Climate Science Review: Extreme Heat



+7 to +33 more  
extreme heat  
days per year

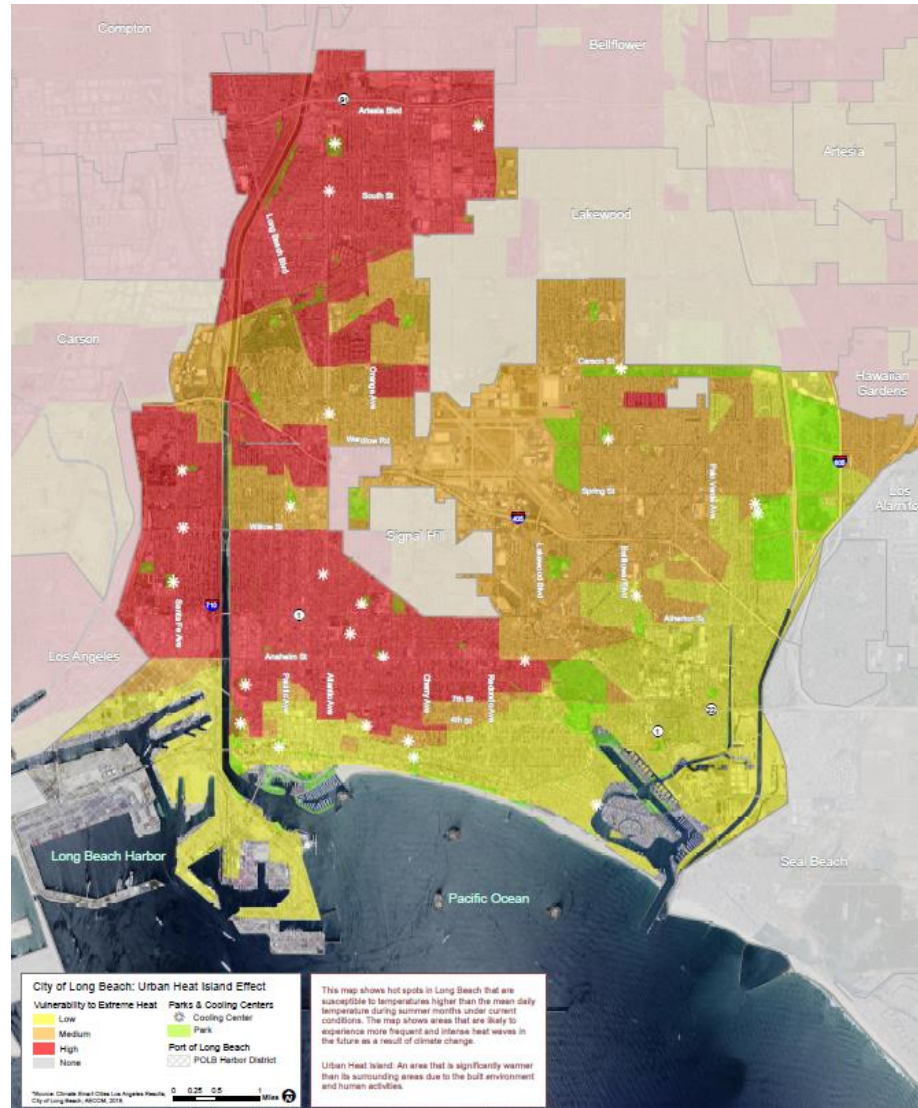
## MORE FREQUENT AND INTENSE HEAT WAVES

Low income areas and communities of color are more likely to live in areas that suffer from urban heat island effect (e.g. North, Central, West Long Beach).



- Approximately **275,000 LB residents** in the high vulnerability zone to extreme heat
- Increased risk of heat-related illnesses and death
- Particularly vulnerable populations include: children, the elderly, people with respiratory diseases, those who work outdoors
- Changes in temperature and precipitation may lead to changes in the spread of vector-borne diseases
- Missed work and school
- Damage to roads, highways, and rail from extreme heat
- Increases in tropical pathogens, parasites, and diseases due to higher temperatures
- Example: Power outages associated with extreme heat

# Vulnerability Assessment: Extreme Heat



# So What Do We Do About it?

## DRAFT Extreme Heat Adaptation Actions

- ▶ Construct bus shelter amenities, e.g., shade structures
- ▶ Increase presence of cool roofs, reflective streets, parking lots and playgrounds
- ▶ Increase public water supply access
- ▶ Expand cooling centers
- ▶ Develop emergency response plan for power outages related to extreme heat
- ▶ Continue implementation of the Urban Forest Management Plan
- ▶ Increase presence of reflective surfaces
- ▶ Increase presence of shade canopies
- ▶ Expand the Agriculture Incentive Zone Program



# Air Quality Impacts



## AIR QUALITY IS EXPECTED TO WORSEN

High temperatures will increase air pollution formation, leading to an increase in regional wildfires, higher CO2 concentrations, and increase in pollen and some airborne allergens.

- Asthma and other cardiovascular and respiratory diseases may increase due to poor air quality and increased allergens
- Asthma hospitalizations rates are highest in West and North Long Beach and lowest in East Long Beach
- Communities in west-central and northern Long Beach are disproportionately more vulnerable to risk associated with pollution and climate change



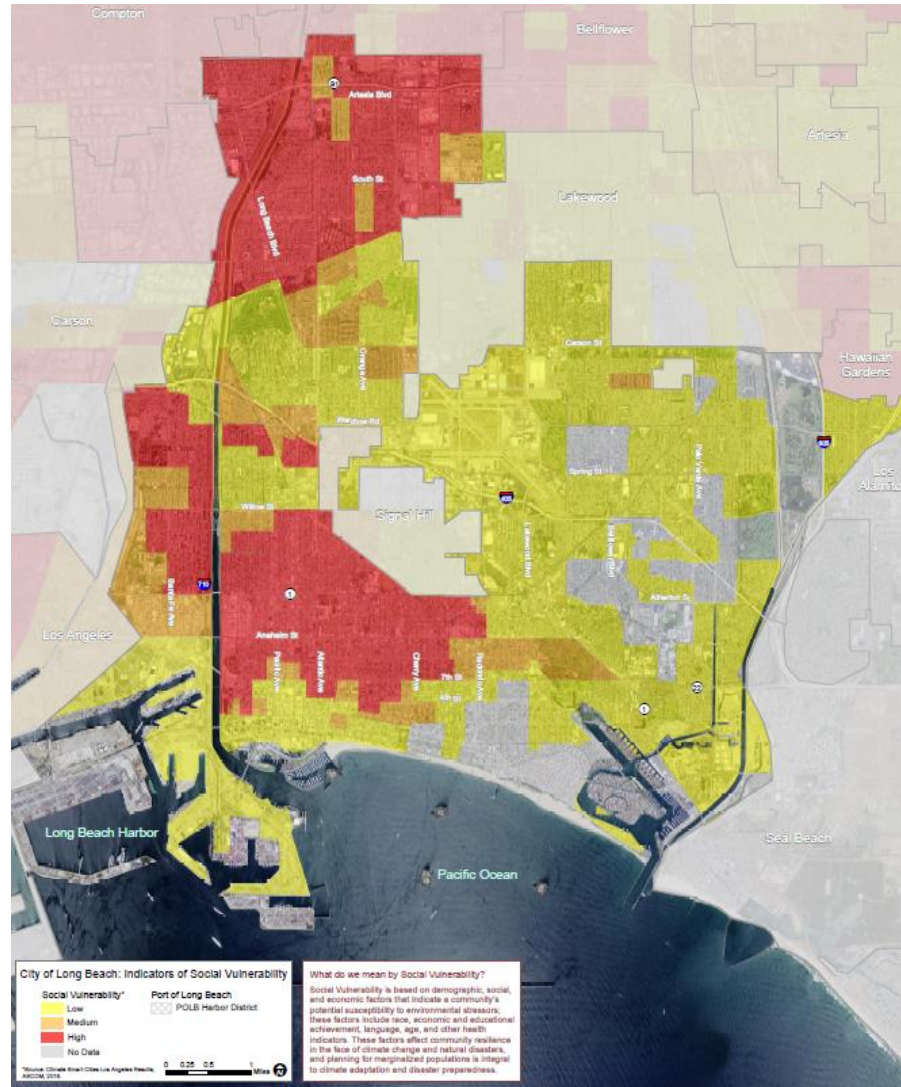
# So What Do We Do About it?

## DRAFT Air Quality Adaptation Actions

- ▶ Incentivize use of photocatalytic roofing tiles
- ▶ Provide incentives to convert marine vessels away from polluting fuels
- ▶ Make LB airport a center of GHG reduction innovation
- ▶ Electrification of local, small emitters (e.g., lawn mowers, leaf blowers)
- ▶ Electrify school buses
- ▶ Increase monitoring of oil extraction and refining process
- ▶ Air quality monitoring on fleet vehicles



# Social Vulnerability to Climate Change



# Drought Impacts in Long Beach



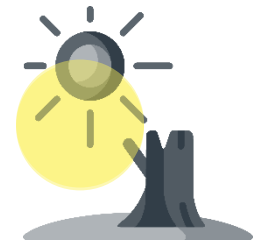
## THE STATE AND REGION ARE EXPECTED TO HAVE LONGER MORE FREQUENT DROUGHTS

Droughts will reduce snowpack and increase intensity of runoff events in watersheds that supply water to Long Beach.

# So What Do We Do About it?

## DRAFT Drought Adaptation Actions

- ▶ Convert landscapes to drought tolerant plants
- ▶ Enforce strong leak detection programs
- ▶ Expand usage of green infrastructure and green streets
- ▶ Expand usage of recycled water/purple pipe infrastructure for direct potable reuse
- ▶ Implement solar-driven brackish water desalination
- ▶ Incorporate increased rainfall capture to offset imported water
- ▶ Install atmospheric water stations
- ▶ Continue public education and outreach programs to eliminate use of storm drains for dumping hazardous wastes, such as oil
- ▶ Undertake additional outreach and education related to water conservation
- ▶ Encourage urban agriculture practices that promote drought resilience



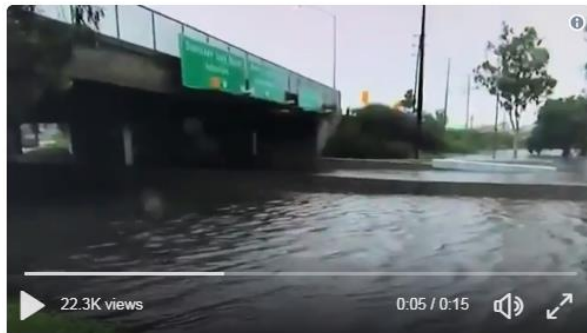
# Riverine Flooding Impacts on Long Beach



## SEA LEVEL RISE AND FLOODING ARE EXPECTED TO INCREASE

Certain coastal areas are at risk of sea level rise, and low-lying areas are at risk of increased exposure to precipitation based flooding.

- Flooding events may contribute to injury, death, displacement, mental health burden
- According to an analysis by the Aquarium of the Pacific, with 24 inches of SLR and a 100-year storm surge, over 22,000 residents are at risk of exposure to flooding
- Sewage overflow could result in water and food-borne illness
- Damage to wastewater infrastructure and sewage backup and overflow in flooding event
- Disrupted food and water supply could cause hunger and malnutrition, particularly in low-income, children, and elderly population
- Increased risk of displacement and loss of home due to a flood event related to precipitation based flooding
- Disruptions to the transportation system could impact neighborhood connectivity including access to jobs, goods, services and healthcare



AstroTurin  
@AstroTurin

The 710 freeway in #longbeach #storm #losangeles #california  
January 22, 2017

5:30 PM - Jan 22, 2017

♡ 573 💬 498 people are talking about this

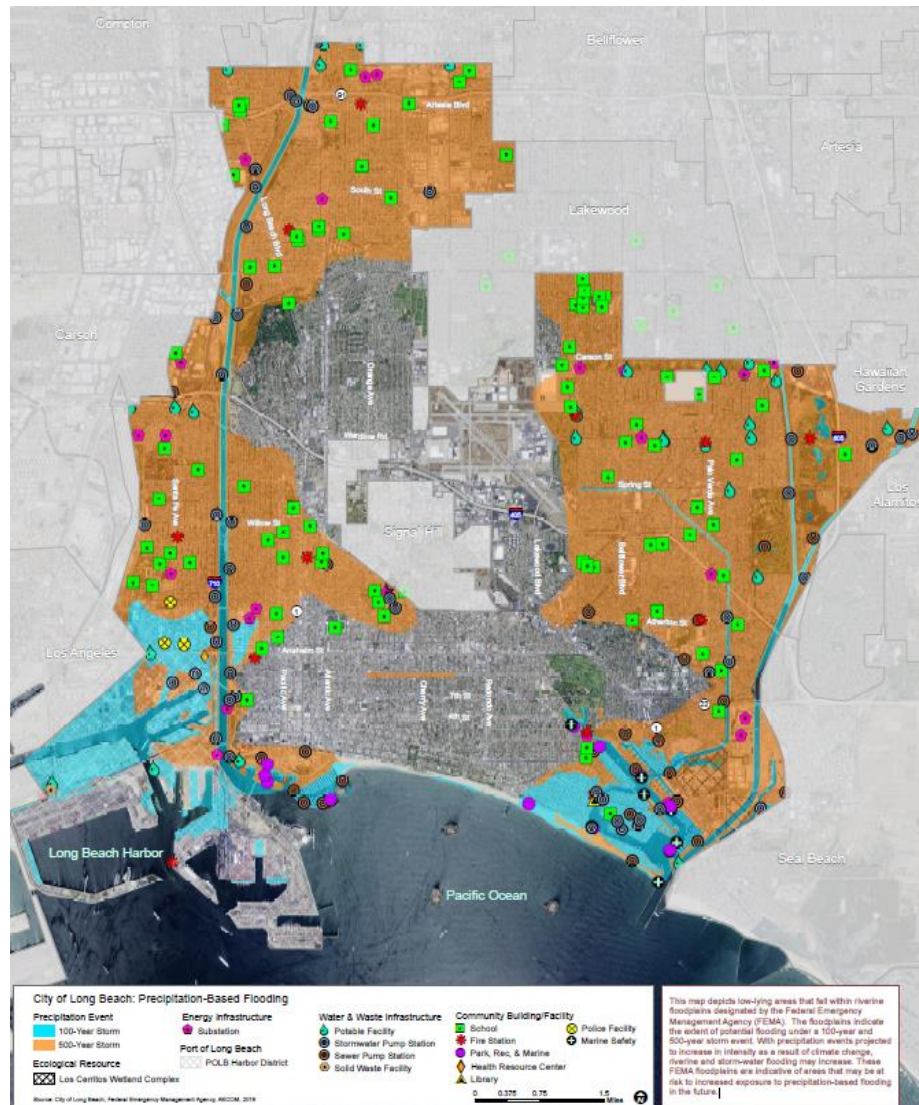


LBDP North Division  
@LBPDNorth

One of many rescues today found by a LB Sergeant & rescued by LB Fire @lbfd personnel. Passenger was in a wheelchair.  
10:14 PM - Jan 22, 2017

♡ 42 💬 22 people are talking about this

# Vulnerability Assessment: Riverine Flooding



# So What Do We Do About it?

## DRAFT Riverine and Urban Flooding Adaptation Actions

- ▶ Develop flood event notification program
- ▶ Prioritize low impact storm-water management practices (bio-swales, permeable pavement, etc.)
- ▶ Elevate existing pump station housing
- ▶ Install new pump stations at appropriate elevations
- ▶ Upgrade storm drain system
- ▶ Elevate riverine levees
- ▶ Elevate critical roadways
- ▶ Elevate and protect electric sub-stations



# Sea Level Rise Impacts on Long Beach



## SEA LEVEL RISE AND FLOODING ARE EXPECTED TO INCREASE

Certain coastal areas are at risk of sea level rise, and low-lying areas are at risk of increased exposure to precipitation based flooding.

Table 1. Sea Level Rise Projections at Los Angeles, CA from OPC (2018)

Year (Emissions Scenario)	Inches Above 1991-2009 Mean Sea Level (in)			
	Median (50% probability of exceedance)	Likely Range (67% percent likely range)	1-In-20 Chance (5% probability of exceedance)	1-In-200 Chance (0.5% probability of exceedance)
2030	4	2 to 6	7	8
2050	8	6 to 12	14	22
2100 (low emissions)	16	8 to 25	36	65
2100 (very high emissions)	26	16 to 38	49	80

Source: OPC (2018)

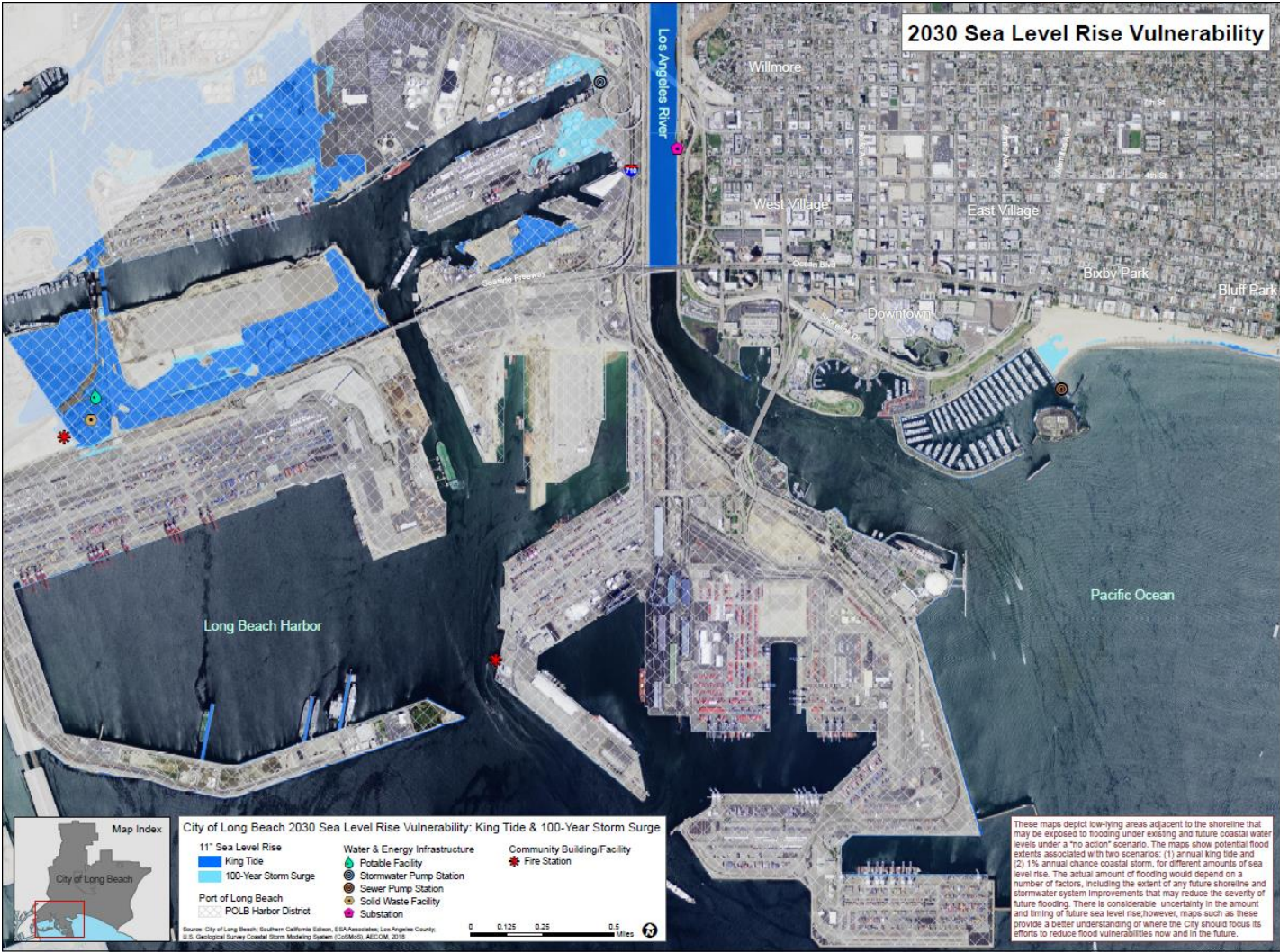
Table 2: Sea Level Rise Projections for Los Angeles, CA from NRC (2012)

Year	Southern California	
	Projection	Range
2030	5.8 ± 2.0 in	4.6 – 11.8 in
2050	11.2 ± 3.5 in	5.0 – 23.9 in
2100	36.7 ± 9.8 in	17.4 – 65.6 in

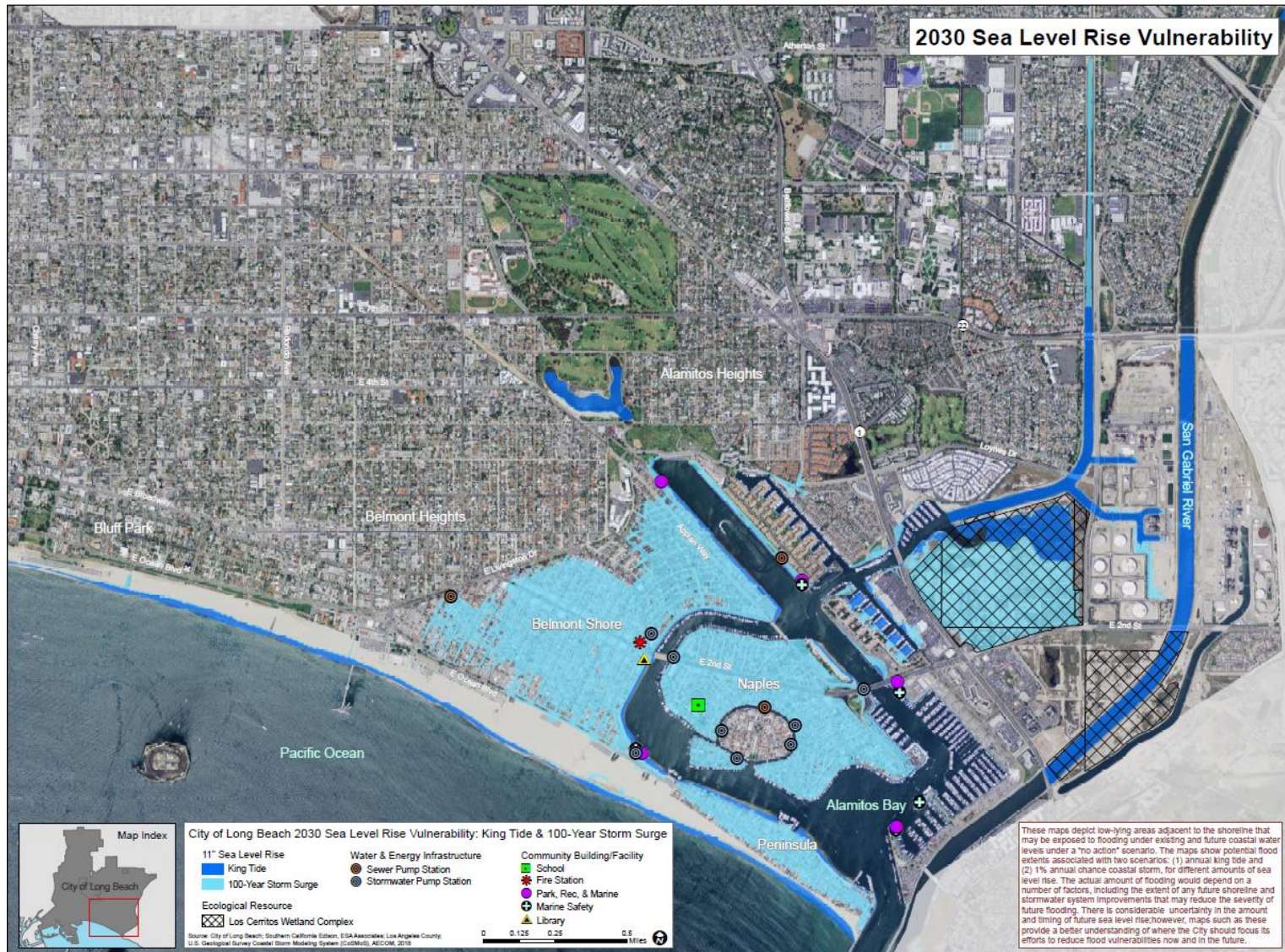
Source: NRC (2012)

- Flooding events may contribute to injury, death, displacement
- Beach inundation and erosion will increase
- Damage to coastal roads, railways, and bridges
- Inundation and loss of access to marinas
- Damage or loss of critical infrastructure, including potable water, waste water, transportation infrastructure
- Damage to transportation infrastructure could inhibit or delay emergency response
- Sewage overflow could result in water and food-borne illness
- Loss of wetland habitat due to SLR. The Los Cerritos wetlands are particularly vulnerable given surrounding urban development

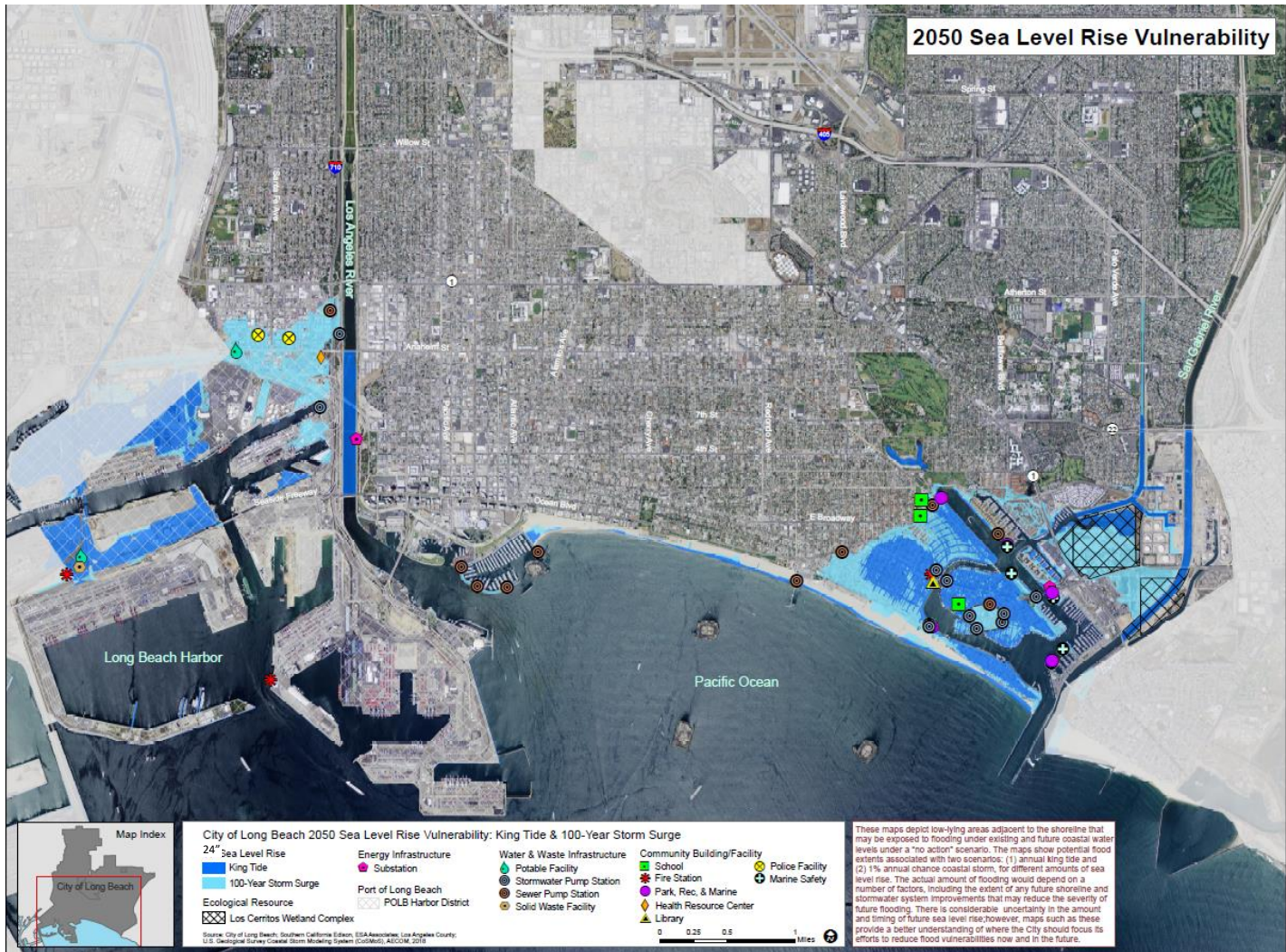
# Vulnerability Assessment: Sea Level Rise 2030



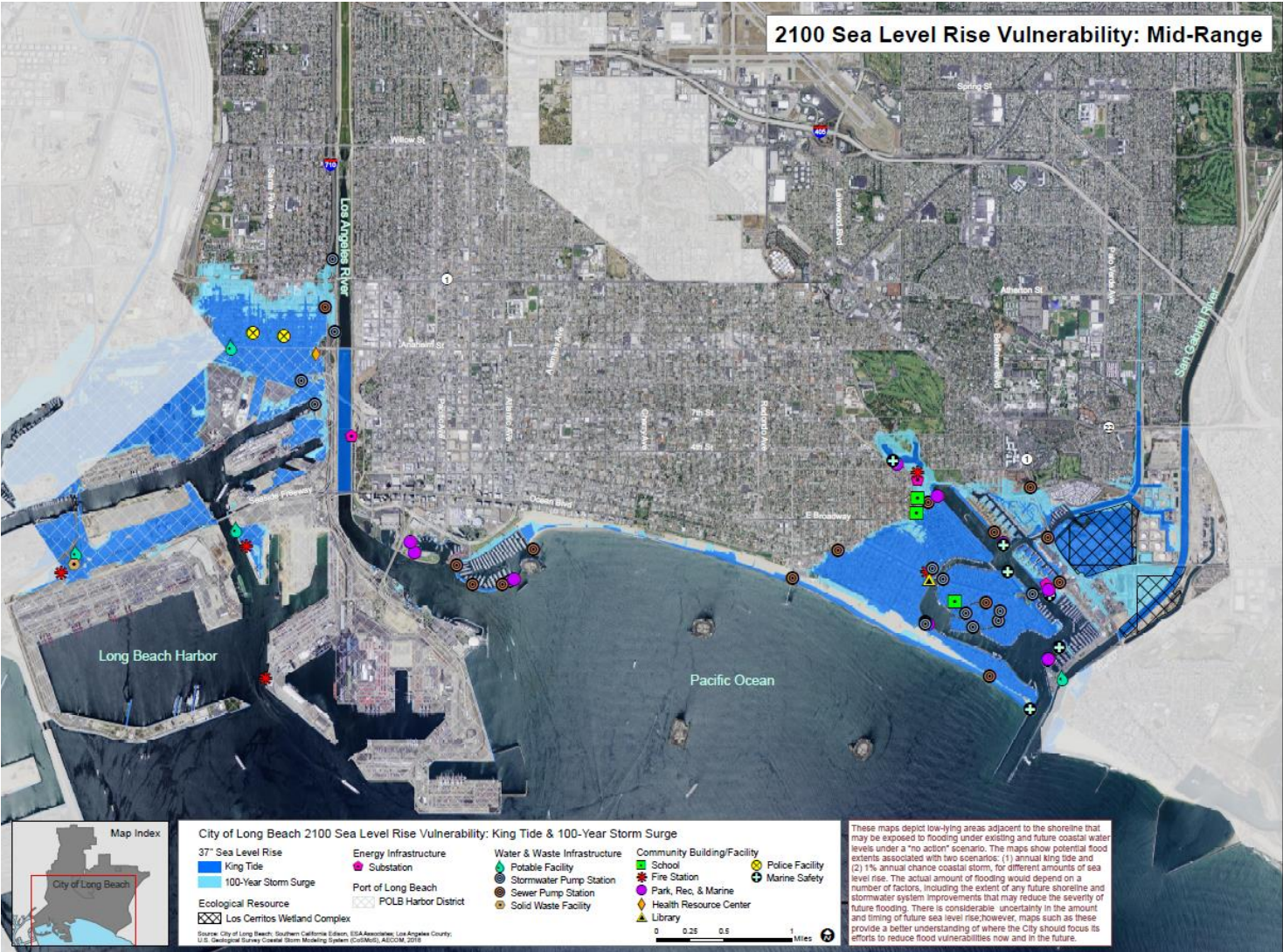
# Vulnerability Assessment: Sea Level Rise 2030



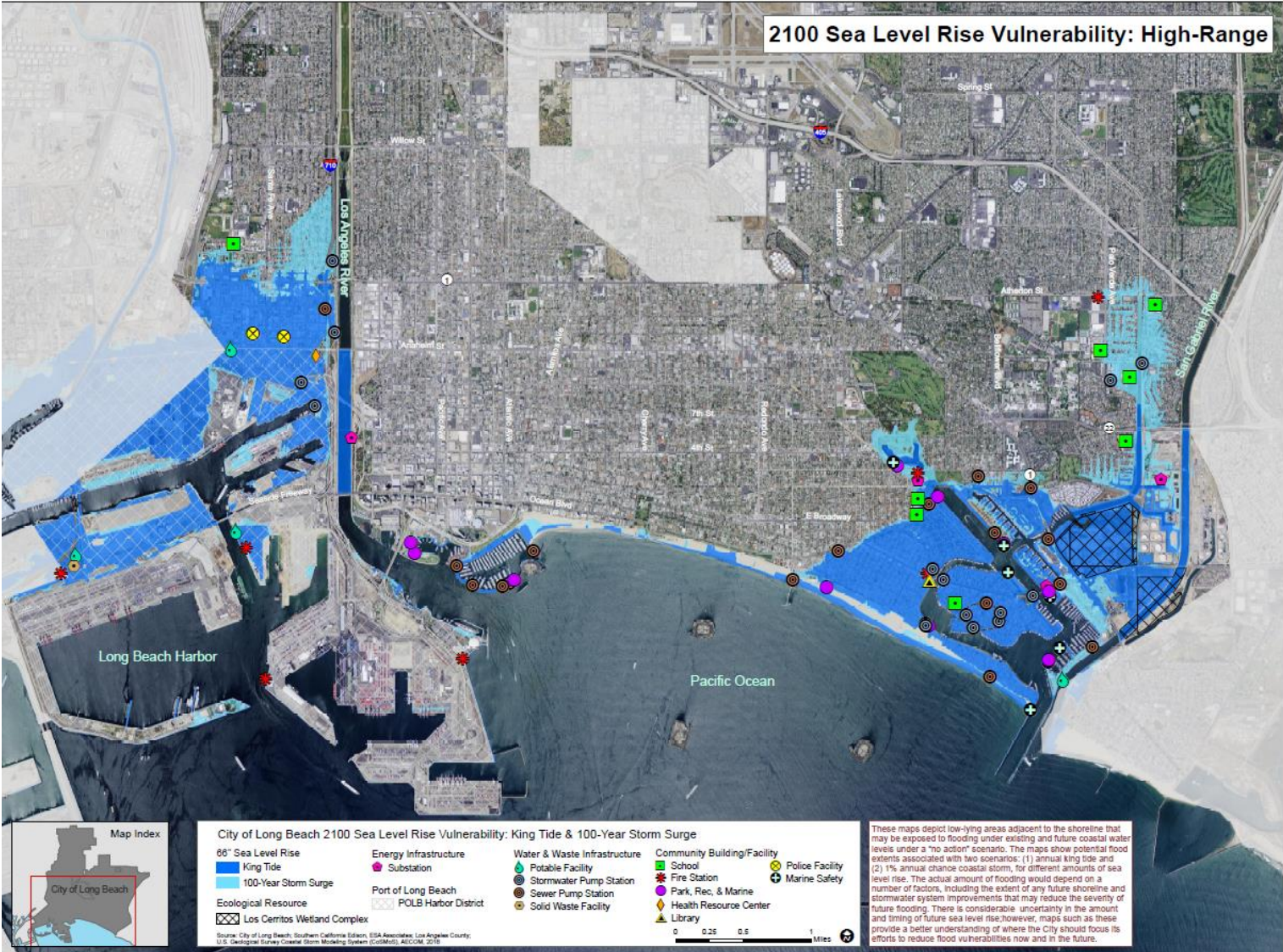
# Vulnerability Assessment: Sea Level Rise 2050



# Vulnerability Assessment: Sea Level Rise 2100 (mid-range)



# Vulnerability Assessment: Sea Level Rise 2100 (high-range)



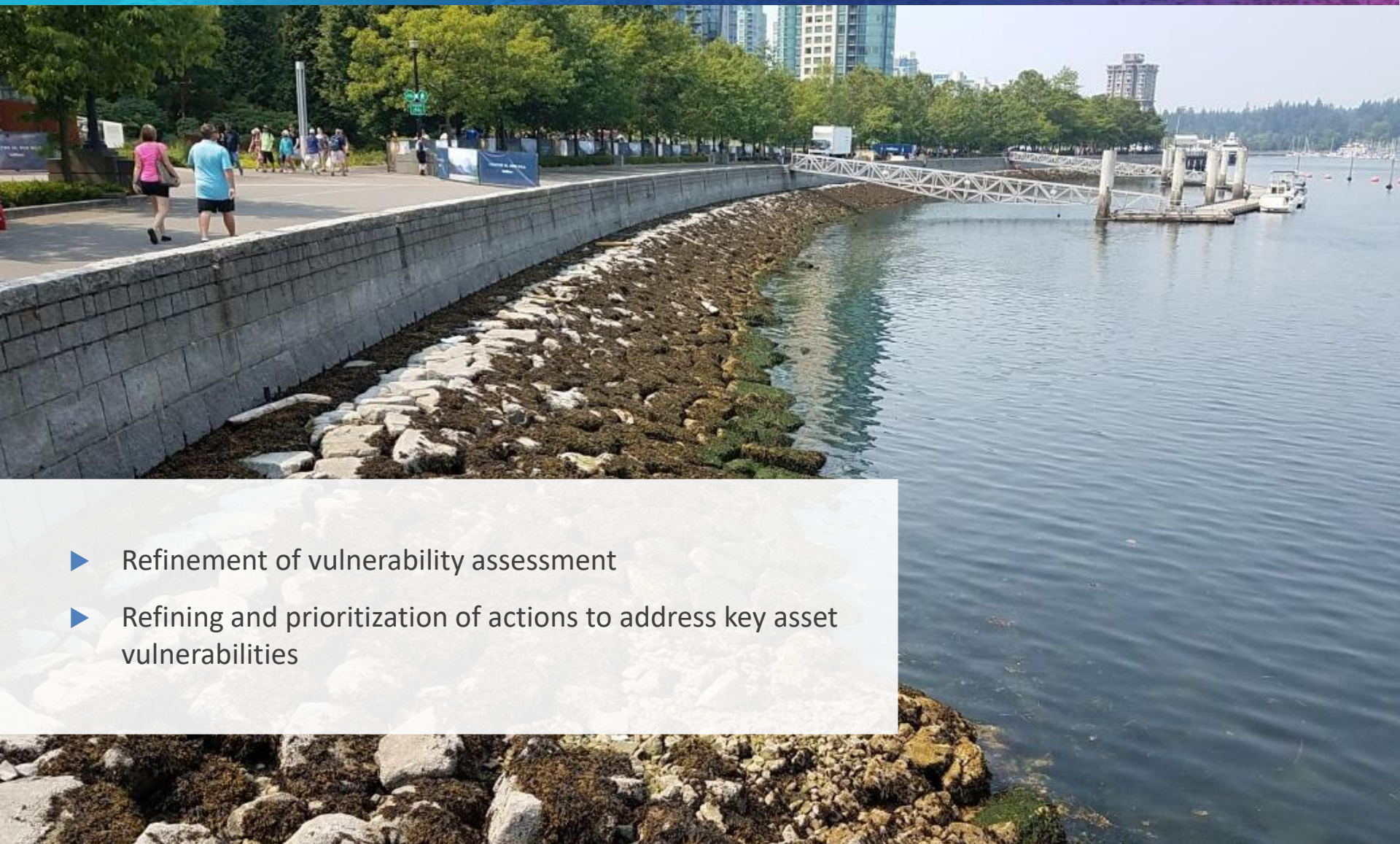
# So What Do We Do About it?

## DRAFT Sea Level Rise Adaptation Strategies

- ▶ Update floodplain management ordinance
- ▶ Relocate/elevate critical infrastructure
- ▶ Update City emergency response plan
- ▶ Elevate homes/businesses
- ▶ Nourish beaches
- ▶ Monitor breakwater
- ▶ Active and/or passive dune restoration
- ▶ Groundwater monitoring program



# Next Steps in Adaptation Planning



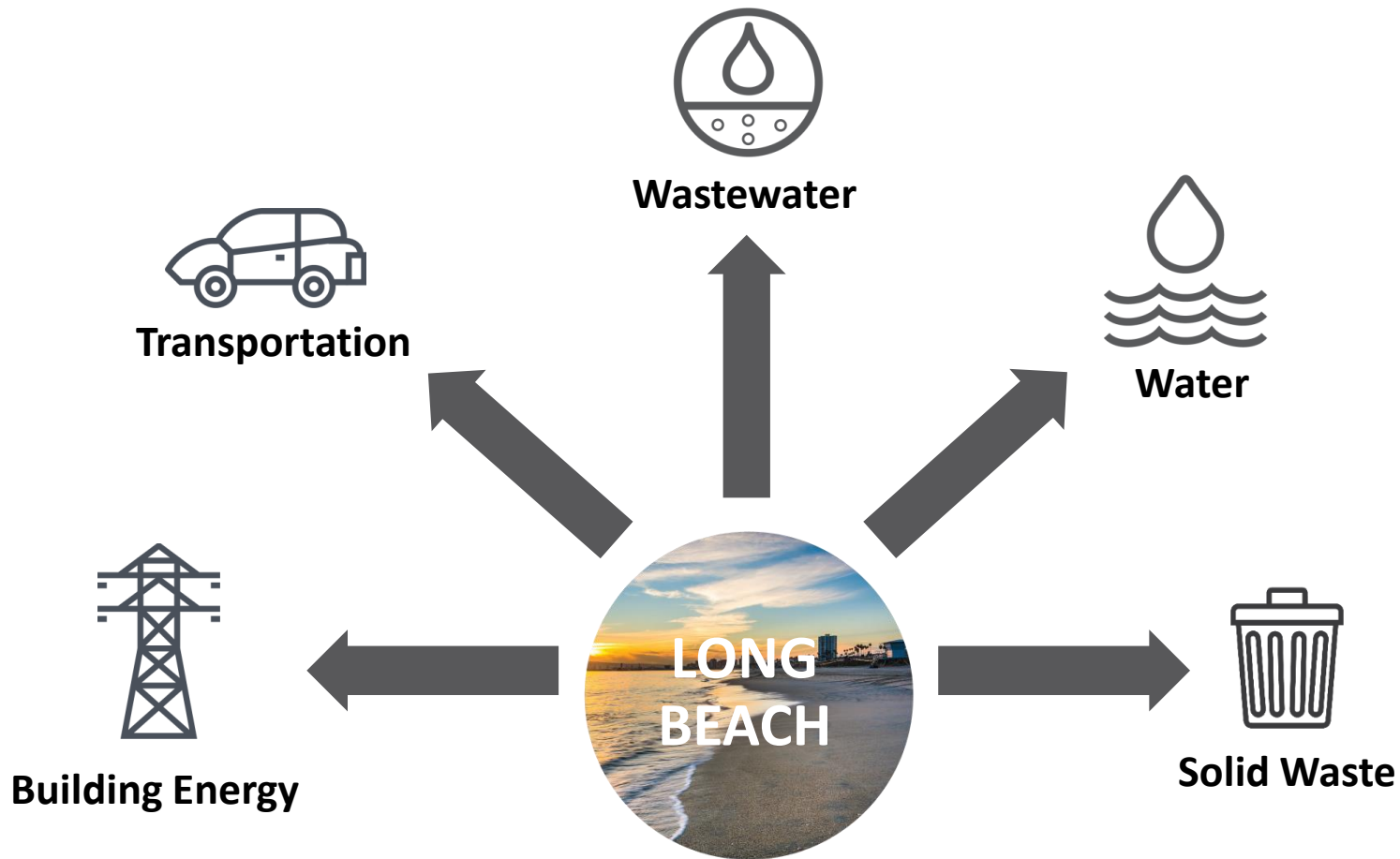
- ▶ Refinement of vulnerability assessment
- ▶ Refining and prioritization of actions to address key asset vulnerabilities

# Climate Mitigation Planning Process



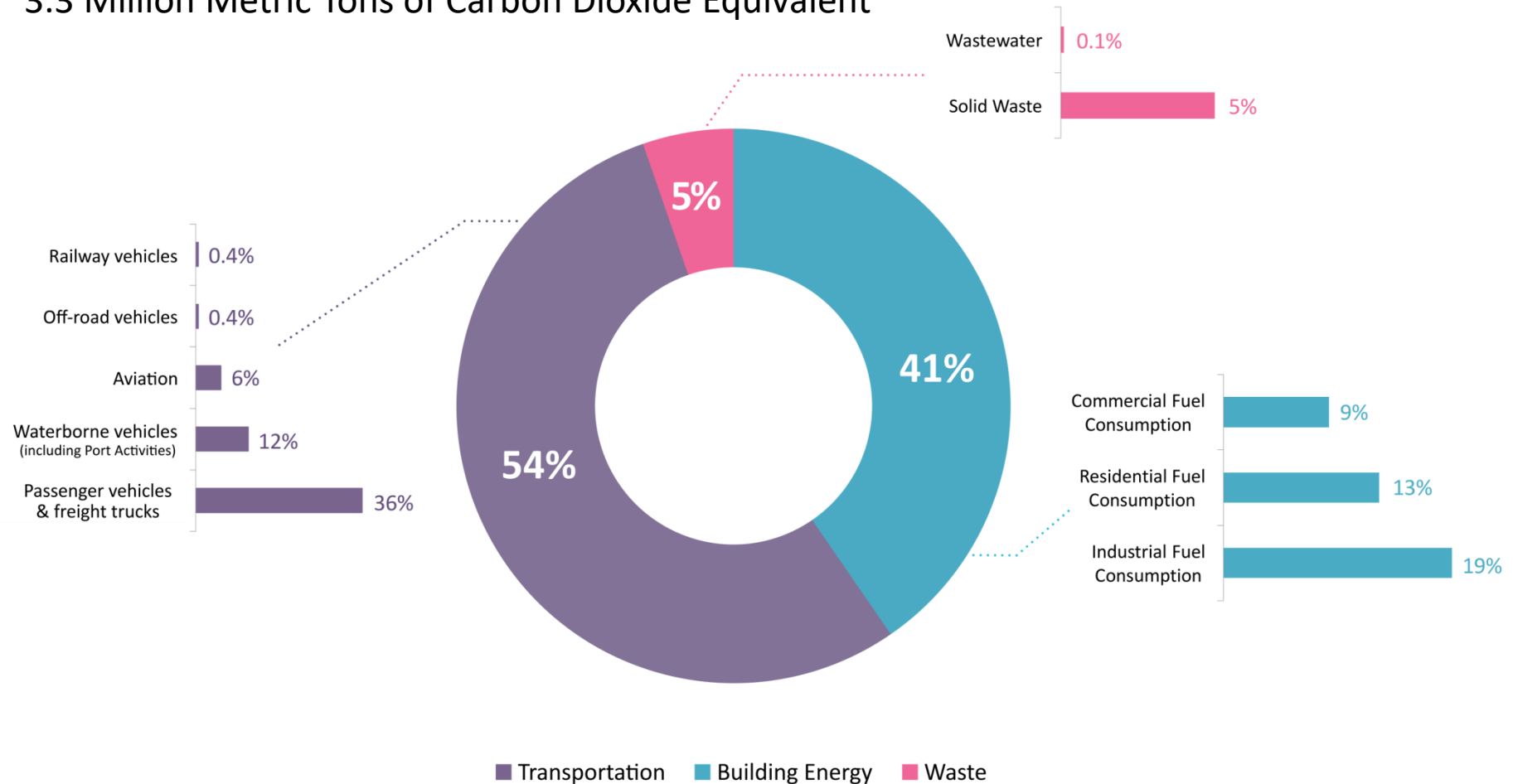
GHG = Greenhouse Gas

# Emissions Generating Sectors in Long Beach

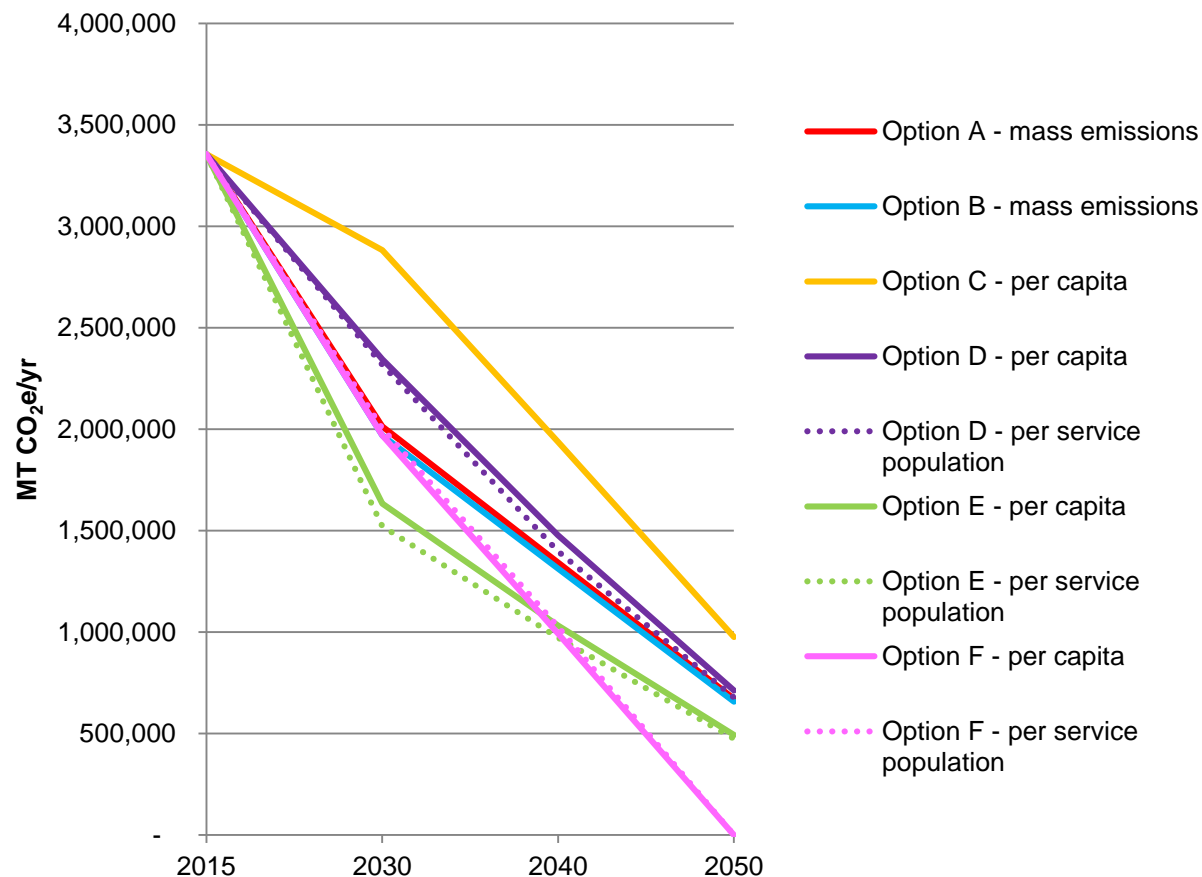


# Communitywide GHG Emissions by Sector

**Total Communitywide Emissions:**  
3.3 Million Metric Tons of Carbon Dioxide Equivalent



# GHG Emissions Reduction Target Considerations (Mass Emissions)



# Mitigation Actions: Transportation

**Reminder:** Transportation is **54%** of emissions in the City

FOCUS AREAS	ACTIONS
Transit Service Enhancements	<ul style="list-style-type: none"><li>• Increase frequency and connectivity of transit options</li><li>• Increase express bus routes and dedicated bus lanes</li><li>• Improve transit stop/station environments</li><li>• Increase employment and residential development along transit corridors</li><li>• Explore the feasibility of providing free or reduced priced transit passes</li></ul>
Active Mobility	<ul style="list-style-type: none"><li>• Increase bicycle and scooter infrastructure</li><li>• Expand the City’s bike share program</li><li>• Expand pedestrian infrastructure citywide</li></ul>
Electric Vehicle Deployment	<ul style="list-style-type: none"><li>• Develop an EV infrastructure master plan</li><li>• Implement EV car-share program in low-income communities</li><li>• Promote participation in SCAQMD Old Vehicle Scrapping program</li></ul>
Transportation Demand Management	<ul style="list-style-type: none"><li>• Update the City’s transportation demand management (TDM) ordinance</li></ul>
Land Use and Transportation Planning	<ul style="list-style-type: none"><li>• Increase density and mixing of land uses</li></ul>



# Mitigation Actions: Building Energy

**Reminder:** Buildings are responsible for **45%** of emissions in the City

FOCUS AREAS	ACTIONS
Renewable Energy	<ul style="list-style-type: none"><li>• Increase access to renewable energy</li></ul>
Energy Efficiency	<ul style="list-style-type: none"><li>• Develop a mandatory commercial building energy benchmarking program</li><li>• Increase construction of zero-net emission buildings</li><li>• Develop a home energy audit program</li><li>• Develop a rental licensing program</li><li>• Develop a Residential and Commercial Energy Conservation Ordinance</li><li>• Provide access to energy efficiency financing, rebates, and incentives for residential and commercial building owners</li><li>• Encourage Long Beach major energy users to participate in SCE's time-of-use electricity rates</li><li>• Provide financial and technical incentives to encourage water efficiency</li><li>• Establish a community energy resource center</li></ul>



# Mitigation Actions: Waste

**Reminder:** Waste is responsible for **5%** of emissions in the City

## FOCUS AREAS

### Waste Reduction and Diversion

## ACTIONS

- Enhance outreach and awareness campaign for waste diversion
  - Improve compliance with state law for commercial, multi-family and residential recycling programs
  - Increase community awareness of consumption-related emissions
  - Develop and implement programs to reduce the use of single-use disposable items
- 
- Improve compliance with new state laws regarding diversion of organic waste
  - Identify opportunities for managing organic waste (e.g., composting, anaerobic digestion)

### Waste-to-Energy



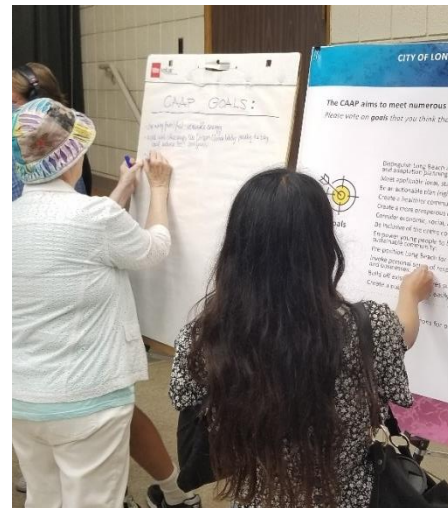
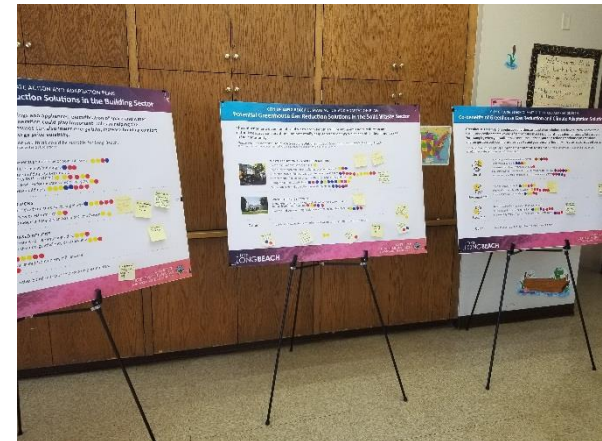
# Next Steps in Climate Mitigation Planning



- ▶ Refining and prioritizing actions (mitigations) to meet GHG mitigation target

# CAAP Development Process: Looking Ahead

- Reviewing and getting feedback on draft adaptation and mitigation actions in detail with the Scientific Working Group, Business Working Group, Community Working Group
- 1/26 Citywide Open House #2
- 30 day public comment period on draft actions
- Draft plan anticipated March 2019
- Open House #3 May 2019



## YOU'RE INVITED!

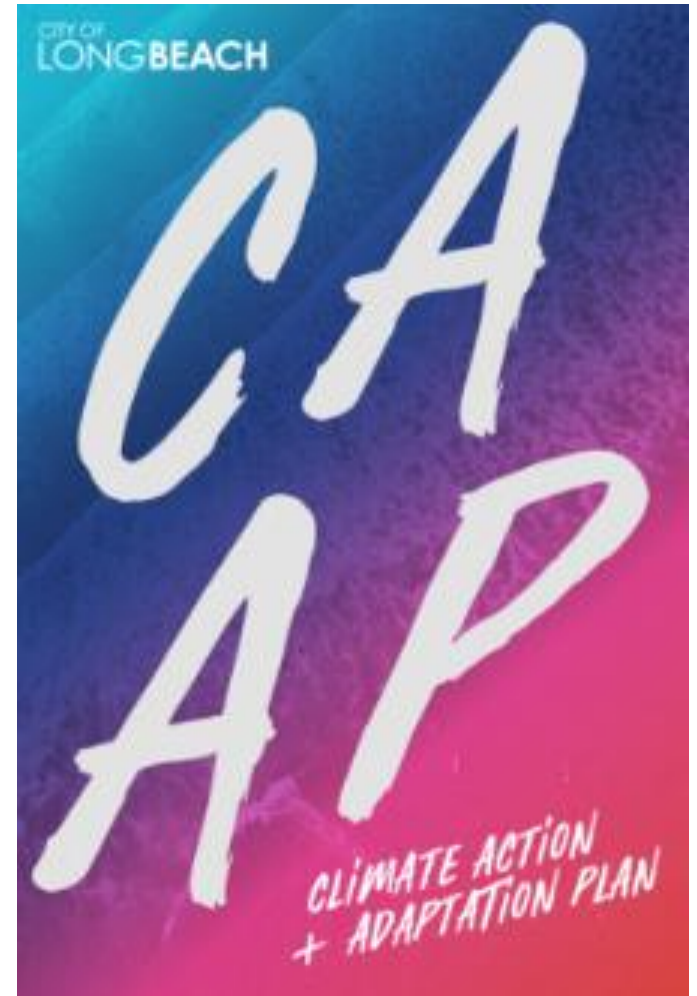
**The 2nd CAAP Public Open House**

**Saturday, January 26, 2019**

**10am – 1pm**

***Michelle Obama Neighborhood Library***

Provide your feedback on potential mitigations  
and adaptations, sustainability resource fair,  
family friendly activities, refreshments



# Learn More, Get Involved, Share Ideas!



- ▶ Take the business community survey:  
<https://www.surveymonkey.com/r/CAAPBusinessSurvey>
- ▶ Visit our website for more info on the project:  
<http://www.lbds.info/climateactionlb/default.asp>
- ▶ #CAAPLB
- ▶ Sign-up for alerts on any of these projects via LinkLB (see website)
- ▶ Ideas? Suggestions?  
Contact:  
Alison Spindler, Advance Planner:  
[alison.spindler@longbeach.gov](mailto:alison.spindler@longbeach.gov)  
562-570-6946

SMALL  
CHANGE

BIG  
IMPACT